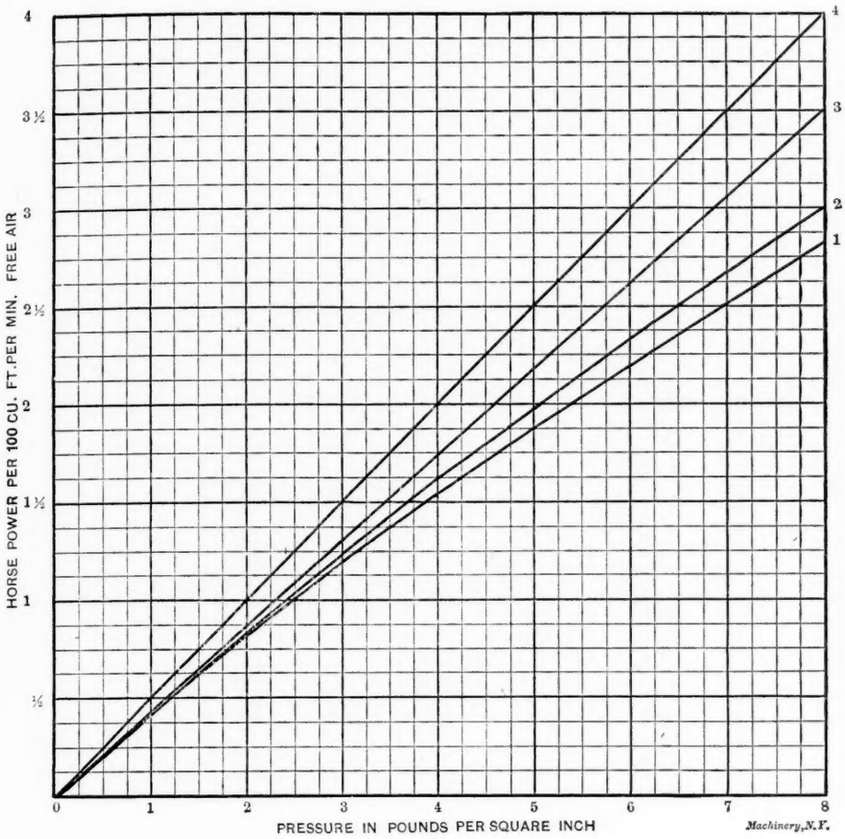
VOLUME, PRESSURE AND HORSEPOWER OF BLOWER PERFORMANCE.—III.



$$\text{H. P.} = \frac{V P l_e \left(\frac{P_1}{P}\right)}{33{,}000} \quad (1)$$

$$\text{H. P.} = \frac{V P \left[\left(\frac{P_1}{P}\right)^{\frac{1}{3}} - 1\right]}{11{,}000} \quad (2)$$

$$\text{H. P.} = \frac{V (P_1 - P)}{33{,}000} \quad (3)$$

$$\text{H. P.} = \frac{\text{lbs. per sq. in.} \times V}{200} \quad (4)$$

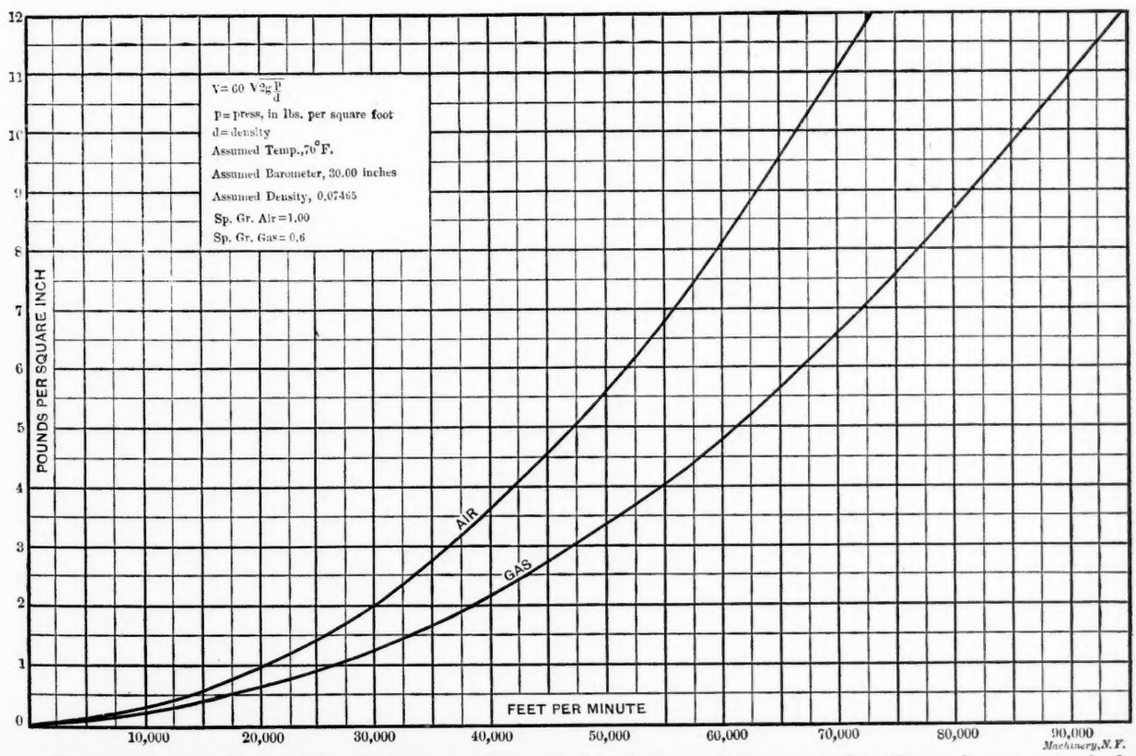
Formula No. 1 gives the horsepower required when air is cooled during compression, as in the ordinary air compressor.

Formula No. 2 is used when it may be assumed that the air is compressed so quickly that it does not have time to cool to atmospheric temperature. Applies to nearly all blower performance.

Formula No. 3 is the ordinary "hydraulic" formula and is ordinarily used for pressures up to 5 ounces per square foot.

Formula No. 4 is used by some makers of positive or rotary blowers. V = volume of air displaced by the impellers, no allowance being made for slippage.

VOLUME, PRESSURE AND HORSEPOWER OF BLOWER PERFORMANCE.—IV.



Curves showing velocity of flow in feet per minute of air and gas under pressures 0 to 12 pounds per square inch. If employed for finding volume of flow, use coefficient 1 when the velocity is measured in a straight pipe; coefficient 0.75 when the velocity is measured at the outlet of a straight pipe; coefficient 0.92 when the pipe is a cone of about 6 degrees included angle: and coefficient 0.60 for an orifice in a thin plate. When area × coefficient = 1 square foot, the above diagram gives flow in cubic feet per minute, directly.